

SCIENCE

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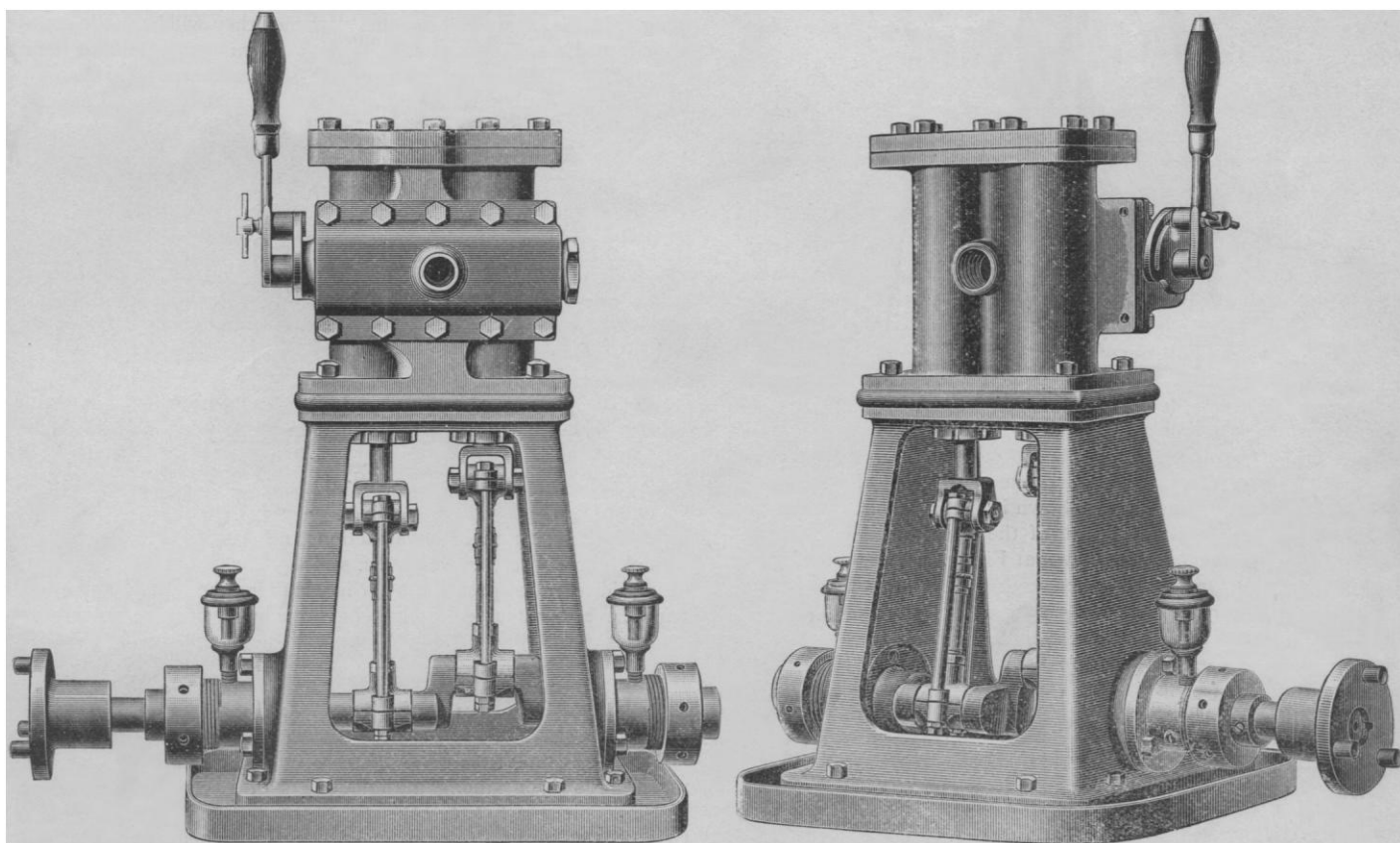
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THE SHORTT HIGH-SPEED ENGINE.

THE new type of steam-engine illustrated on this and the following page possesses several points that will naturally attract the attention of engineers and steam-users generally. There are features about it that will specially commend it to marine engineers and yacht-owners, as well as to others interested in compact high-speed reversible engines giving a maximum of efficiency with a minimum of fuel, and as free from complication of parts as possible.

results as to strength and stiffness are got from a given weight of metal. The pistons are double-acting; that is, steam is admitted to them at each end of the stroke. An engine of this type, with cylinders two inches in diameter and two-inch stroke, will develop two horse-power under ordinary conditions, but with high steam-pressure it is capable of doing much more. A launch engine of this size and power, running at four hundred revolutions a minute, has been used to run a twenty-five foot launch during the past year with excellent results. Though the model of the boat is not one



FIGS. 1 AND 2.—THE SHORTT DUPLEX HIGH-SPEED ENGINE.

The engine shown in the illustrations is known as the Shortt duplex high-speed engine, and it is being placed on the market by the Hussey Re-heater and Steam Plant Improvement Company of this city. Figs. 1 and 2 are perspective views of a reversing engine designed more especially for steam-launch and yacht service. Fig. 3 is a section showing the frame, cylinder and piston, steam-valve, connecting-rod, etc. It will be observed that there are two cylinders and a double crank, the crank-pins being set at an angle of ninety degrees with each other, thus preventing the engine from ever being on a dead-centre. The cylinders are made in one casting, and are supported on a frame of A-pattern, in which the best

calculated for speed, it is said to have run along easily and continuously at a rate of ten miles an hour.

The valves, though cylindrical in form, are the same as the regular slide-valve in action and principle. They take their motion from the pistons, the piston and valve of the right-hand cylinder controlling the admission and cut-off of steam to the left-hand cylinder, and *vice versa*, the steam ports being crossed. Fig. 4 is a diagram of the valve-seat and ports, the dotted lines showing the crossed steam-passages. The steam-ports are designated by the letter *D*, and the exhaust ports by *C*. The valves are shown in Fig. 5, *E* being the reversing-valve, and *F* the main valves. The

